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ECONOMICS

THE FUNCTIONAL AND THE INSTRUMENTAL IN MARKET DEFINITION: A LABORATORY FOR NATURAL EXPERIMENTS IN THE BALTICS

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Reforms of natural monopolies need clear delineations between the industries where market mechanisms contribute to social welfare and those where the costs of a transition to a market economy outweigh the benefits. In this article, we emphasise the difficulty of finding the optimum modes of governance within industries as a whole. Using the tools of the transaction cost economics, we show that, alongside the problem of market boundaries and the resultant position and behaviour of a company — an object of antimonopoly regulation — it is necessary to consider the hypothesis about the market being a special mechanism for coordinating interactions between economic entities. In particular, such determinants of transactions as asset specificity, uncertainty, and frequency can create a basis for abandoning the price mechanism. Williamson's heuristic models suggest that if an activity is characterized by high specificity, uncertainty, and frequency, the very organisation of this activity precludes transaction cost minimisation through the price mechanism employed either in full or in part (hybrid institutional agreements). This can be explained by excessive risks and ensuing high transaction costs. A more efficient solution is the organisation of interactions within a group of legal entities in control (within a single economic entity).

In order to compare the practical implementation of institutional alternatives, we examine the modes of governance in the gas supply industry. A major focus is the Baltic region where two interconnected pipelines — the Nord Stream and the OPAL — were constructed. Different ways to handle transactions relating to gas supply were employed at the time. We compare these ways

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and conclude that it is necessary to consider the determinants of a transaction to select the best structural alternative and to avoid choosing a wrong governance structure.

Keywords: market, transaction, modes of governance, hierarchy, gas, pipelines

Introduction

At the interface of academic, political, economic, and legal discourse, it is easy to confuse different meanings embedded in the same essential word. This word is *market*. A transition from a functional to an instrumental definition of *market*, and vice versa, may not only change ideas about current economic practices but also lead to regulatory conclusions, affecting decision-making in business and law enforcement. We remind the reader that, in economic studies, the functional differs from the instrumental in that the latter does not require a research approach to depend on the spatial and temporal context. In particular, instrumental rationality suggests that decisions made by individuals be examined in terms of maximisation behaviour, regardless of whether maximisation takes place in reality. The focus is on the explanatory, or predictive, power of this approach. The instrumental approach to analysing relations between economic agents can be described in terms of contracts. This is possible even if the counterparties did not mean to discuss terms and conditions or, least of all, conclude any agreements. Implicit contracts are a vivid example of such a situation. Accordingly, the instrumental approach to market research may appear as the presentation of almost any interaction between economic agents as a market one and the identification of relevant prices and quantities. In its turn, functionalism in the approach to behaviour studies in terms of rationality and to interactions in terms of contracts and market requires a weakening of the premise about the *de facto* absence of structural alternatives to economic exchange organisation (further, modes of governance). Another requirement of a positive analysis is the weakening of the premise about the absence of legally binding characteristics of contracts, or at least those perceived as such by its counterparties. The functional approach to studying the market as a means of organising interactions among economic agents allows for not only a comparative analysis but also for establishing the absence of a market despite the presence of such external attributes as relevant operations, transactions, and connections among legal entities.

This work aims to identify the grounds and possible consequences of a conclusion about the absence of market as a vehicle for interactions between parties to individual transactions, even if these transactions comprise operations relating to the production and transfer of goods. This also holds true for transfers between legal entities.

In section one, we will consider the problem definition as presented in research literature. In section two, we will give a theoretical interpretation that will provide an explanation necessary to delineate the boundaries of antitrust enforcement. In section three, we will examine major disputes among corporations and/or public authorities. In such situations, the question of a correct interpretation of relations between the counterparties, or, in other words, whether such relations can be interpreted as market ones, was coming to the fore. Finally, we draw conclusions about the appropriateness of interventions into economic agents' relations from competition authorities, depending on the employed mode of governance. This problem is not limited to local cases of 'degradation'. On the contrary, it has a wide scope, primarily, when it comes to relations in the province of natural monopolies amid ongoing reforms and the incompleteness of the regulatory framework.

1. Problem definition

Reforms in the system of natural monopolies require clear delineations between the areas where market mechanisms contribute to public welfare and those where the costs of a transition to a market economy outweigh the benefits. The need to identify what mode of governance is the most efficient one from the perspective of economics complicates decision-making. Note that the mechanism should be efficient not for the industry as a whole, or the circulation of certain goods or services, but for a special combination of transactions under certain spatial and temporal circumstances. Moreover, the conditions for such transactions may significantly differ [1, p. 45, 105].

The difficulty of choosing an optimal mechanism for transaction management for an industry as a whole is manifested in the existence of mixed regimes. For instance, Russia's electric power industry retains so-called non-price areas where 'market relations are still impossible for technological reasons' [2]. The market mechanism for transaction management — the price mechanism — is replaced in this situation by a trilateral governance mechanism described by O. Williamson [3, p. 79], the third party being a public regulator. The public regulator resolves the most serious disputes (firstly, those relating to rates) and sets the framework for relations within the industry. In the market of petroleum products transportation, pipeline tariffs are also regulated by the state. However, in October 2016, Russia's Federal Anti-Monopoly Service (FAS) carried out a market analysis and recommended to terminate such regulation to further the transformation of natural monopolies towards market competition [4]. At the same time, it was proposed that Transneft remained on the natural monopoly register and that the Federal Antimo-

nopoly Service retained control over the performance of the company. Transneft is considered a dominant economic agent in the market in question, regardless of its market share. A possible solution is a transition from a trilateral mechanism for transaction management to the market (price) mechanism. This will be possible if the decision of the FAS is adopted and the Service refrains from interventions in the pricing process.

The gas extraction, transportation, and distribution industries, which are the focus of this article, are in urgent need of selecting an optimal mode of governance. This holds true for both Russia and other countries, for instance, the EU member states.

From the perspective of the regulatory component of the business environment, antitrust regulation is one of the most sensitive aspects of the functioning of large companies in Russia, including national natural monopolists. In analysing the cases of a possible abuse of a dominant position by a company that is not a natural monopolist, a specific set of issues come to the fore. Using economic analysis tools, these issues may be interpreted as a company's lines of defence. Overall, they may be divided into three groups: (1) the delineation of the product and geographical boundaries of an economic agent's market; (2) the identification of an economic agent's position in the market (whether it dominates the market, if so, individually or collectively); and (3) an assessment of the actions of an economic agent from the perspective of possible consequences (whether, and if so how, it abuses its dominant position), including those for the consumer.

At first glance, these issues pose a dilemma for a natural monopolist.

It may be established in a dispute that a company operates in a natural monopoly market. In this case, the company's position is classified by default as dominant, according to Paragraph 5 of Article 5 of the Russian Law On Competition Protection. Only issue (3) remains relevant for such a monopolist. In effect, this means the launch of a trilateral mode of governance with government's mediation. The antitrust policy is tailored to deal with such situations.

Otherwise, it may be established that a company does not operate in a natural monopoly market. In this case, the antitrust authorities should deal with it as they do with any other company. The antitrust authorities have to use standard procedures, i. e. to control the effective performance of the market mode of governance. Another special case is that of a bilateral monopoly when the companies on both sides of the market are not natural monopolies and there are no other grounds for a regulatory authority's intervention. In this situation, it is highly probable that a bilateral mechanism for transaction management will be applied if the regulatory authority refrains from any intervention. This situation is examined in in more detail in [5].

However, in all these cases, autonomous parties to a transaction transfer rights to each other. Therefore, from the perspective of the antitrust policy, there are grounds to speak of a commodity market, even if the relevant relations do not always fall within the market mode of governance.

At the same time, such a model overlooks another possibility for a scrupulous company to protect its legitimate interests. This is to question the synonymy of the two concepts that may seem quite similar — operations relating to the production and transfer of a product between two legal entities, on the one hand, and the sale of commodities, on the other.

This requires a hierarchical mode of governance, which may be more efficient than those considered above. However, an instance of vertical integration, it does not entail autonomy of its parts. This rules out any interpretation of relations between the parties to a transaction in market terms and thus takes such cases beyond the permissible set of situations that necessitate the use of antitrust policy tools.

In other words, it comes down to the foundations of the existence of a market as a special mechanism for organising interactions among participants in an economic activity, or economic agents, in terms of the antitrust legislation. This problem cannot be easily solved applying current regulations and usual economic analysis tools described in microeconomics textbooks. It seems that any interaction can be interpreted as a market one, even in the absence of the major market element — price. We remind the reader that the presence of price *per se* does not necessarily mean the presence of a market. A vivid example is transfer pricing.

However, the transaction cost economics, a key element of which is a comparative analysis of discrete structural alternatives to transaction organisation, opens up new opportunities. These opportunities pertain to using an economic analysis of non-standard situations for the purposes of antitrust enforcement and to improving type I and type II error rates in law enforcement [6; 7], in view of the available alternatives [8], including those relating to competition protection [9]. Thus, the next section will present the tools of the transaction cost economics adapted to fit this study.

2. Theory

Meeting the standards of economic analysis is a major requirement for improving the quality of law enforcement in regard to competition protection in commodity markets. This makes it possible to interpret both the results of an economic analysis and the situations of antitrust enforce-

ment [10]. To a great degree, this is a result of the valuative nature of the major rules of competition, the application of which requires that facts be established using relevant concepts borrowed from different areas of economics. One of the most promising areas in this context is the transaction cost theory.

The transaction cost economics, which is not to be confused with new institutional economics (for more detail, see [11]), highlights a number of important circumstances of running operations, namely, transaction attributes. They should be taken into account for the operations and relevant investment, as well as benefits for society, to be not only effective but also possible. These attributes are asset specificity, uncertainty, and frequency. Before discussing these attributes in detail, we should emphasise that transaction cost economics employs two behavioural premises — bounded rationality and opportunism [1]. What comes to the fore is that the results of using institutions of economic relations organisation depend on both the structure of incentives for agents and agents' ability to adapt, individually or collectively, to changing circumstances.

1. *Asset specificity*. Producing profits for their owners, assets can be used in very different ways, depending on the terms and conditions of contracts concluded with various counterparties. If redeployment to alternative uses or by alternative users or the repudiation of a contract by any counterparty does not lead to significant changes in productive value, there are reasons to believe that this asset is not specific. Strictly speaking, this thesis corresponds to the fundamental principle that competitive equilibrium translates into zero economic profit.

However, if there is a stable and noticeable difference between profits from one of the available ways to use an asset and the next profitable alternative, there are grounds to consider such an asset specific. The difference between profits from a contract with a certain counterparty and the greatest profit from a contract with an alternative counterparty is called quasi-rent, which is the measure of an asset's specificity.[1] In line with Williamson's ideas [1], the economic theory used to distinguish four types of specific assets. Later, the classification was expanded to include six types: (1) site specificity; (2) physical specificity; (3) the size of the market (dedicated assets); (4) human specificity (knowledge necessary for the transaction); (5) brand-name specificity; (6) temporal specificity [12, p. 3]. For the purposes of this study, it is necessary to take into account the attributes that fall under the categories of temporal or site specificity.

[1] Note that *quasi-rent* does not attest to the market power of counterparties. On the contrary, it testifies to the vulnerability of the profits of both parties, if the contractual relations do not include protection from the parties' opportunism under uncertainty (this will be addressed below). The latter may be a result of the absence of contractual precautions.

The more specific an asset, all other things being equal, the less effective the use of the price mechanism for the company is and, thus, there are fewer grounds to consider the object of a transaction 'a commodity' and the area of interactions between the parties 'a commodity market'.

This thesis is illustrated by the well-known heuristic model [1], which reflects conditions for minimising transaction costs at different levels of asset specificity. According to this approach, zero asset specificity, which is characteristic of the use of non-specific assets, translates into positive transaction costs. However, such an undedicated mechanism for transaction mechanism as pricing ensures minimum transaction costs, whereas maximum costs are associated with the hierarchy (see figure 1). As asset specificity increases, transaction costs grow for all the three basic institutional arrangements — markets, hybrids, and hierarchies. This statement is of crucial importance for the discussion below. High rates of increase in transaction costs are associated with low levels of transaction costs when non-specific assets are used. Thus, there are two points of redeployment, which necessitate a transition from the price mechanism through a hybrid institutional arrangement to a hierarchy as a key characteristic of relations within an economic firm, as asset specificity increases.

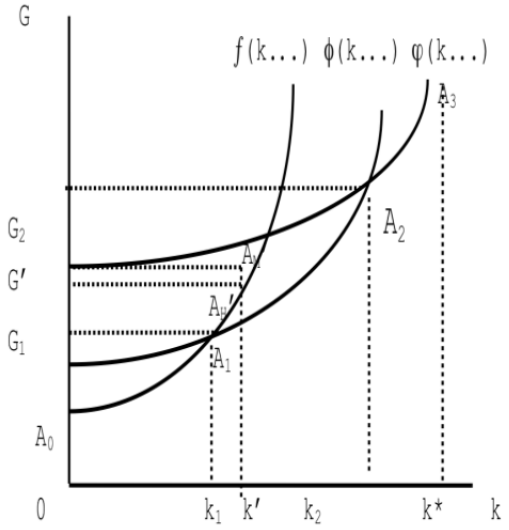

Fig. 1. Conditions for the minimising transaction costs as asset specificity changes

k is asset specificity, *G* is the level of transaction costs, *f*(*k*...) is the function of transactions costs for the price mechanism, $\phi(k...)$ is the function of transaction costs for the hybrid mechanism; $\varphi(k...)$ is the function of transaction costs for the hierarchy mechanism, k_1 and k_2 are the levels of asset specificity for a transition from the price to the hybrid mechanism and from the hybrid to hierarchy mechanisms (transaction levels G_1 and G_2 correspond to these transitions)

High asset specificity does not make the use of the price mechanism impossible. However, this mechanism becomes economically impractical because it violates the basic principles of selective association of transactions with relevant governance structures in solving the problems of transaction cost minimisation.

Williamson's original model does not cover possible situations when, until a certain level of asset specificity, the actual level of transaction costs is above the potential one for each structural alternative. However, in figure 1, this gap is closed. Moreover, a certain implicit limitation has to be weakened for the sake of a consistent comparative analysis of discrete structural alternatives to transaction organisation [13, p. 108; 14, p. 210]. In the cases of (1) the violation of the principles of institutional design at a microlevel (contracts) or of (2) 'market fundamentalism' (see [7]), higher transaction costs of utilising the price or hybrid mechanism will not pose an obstacle to the application (or, at least, attempts at the application) of market modes of governance, despite economic inefficiency.

2. *Uncertainty*. Entrepreneurship is associated with uncertainty. Of crucial importance is how uncertainty is understood and how it can be taken into account in selecting a form of economic organisation (a mode of governance). This has been stressed in a number of studies [1; 15, P. 14—15]. The three major ways to organise operations and, therefore, interactions between economic agents — using prices, hierarchical relations, and a hybrid institutional arrangement — suggest different mechanisms for the adaptation of counterparties to changes in the economic situation. Each of the three alternatives has its own comparative advantages associated with different levels of asset specificity and uncertainty.

In the case of higher asset specificity, the higher the uncertainty of business decision making, the greater the incentives for using hierarchical instruments for transaction management and the fewer grounds to consider the asset in question a commodity and the relevant relations a commodity market. The only exception is the situation when the application of classical contracts and the price mechanism are invariants for non-specific assets by transaction frequency.

The price mechanism is efficient when it allows market participants to adapt to unexpected changes in the operation conditions independently of each other and without lengthy and complicated negotiations. Such changes can be caused by alterations in commodity circulation in a market under the effect of external factors or by the unscrupulous behaviour of a counterparty. In the case of the hierarchy mechanism (within an economic agent with a single control centre), rapid adaptation is also possible. However, this does not apply to hybrid forms. Why is it so? Alongside independent decision-making by the parties, the price mechanism is associated with the minimum dependence of market players on a certain counterparty. If a need arises to switch between contracting agents, the costs will be at the minimum. Although permitting

independent decision-making by the parties, any hybrid form requires that adaptation to changing conditions is collective and that switching to a different counterparty does not take place. This is not always possible. The higher the uncertainty, the greater the significance of the ways to adapt to unexpected changes (including such a crucial dimension of entrepreneurship as time). Why should one use hybrid forms and sign long-term package contracts with prolongation mechanisms when one can use the price mechanism? The latter solution would not cause any problems but there is a catch, namely, the dependence of one of the parties on preserving relations with the other one due to asset specificity. Such a unilateral dependence is associated with significant risks of the expropriation of quasi-rent, i. e. profits associated with the operations of a specific asset owner. However, until such operations commence (a project is launched), there are none (or very weak) incentives to invest in specific assets. In other words, the expropriation of quasi-rent inevitably weakens the incentive to invest in such assets. Accordingly, the absence of contractual precautions becomes a source of a relative reduction in public welfare because of missing the opportunities for using specific resources where they will be more productive than non-specific ones.

Figure 2 illustrates this thesis. Its original is found in [1] and more detailed versions in [13, p. 106; 14 p. 208]

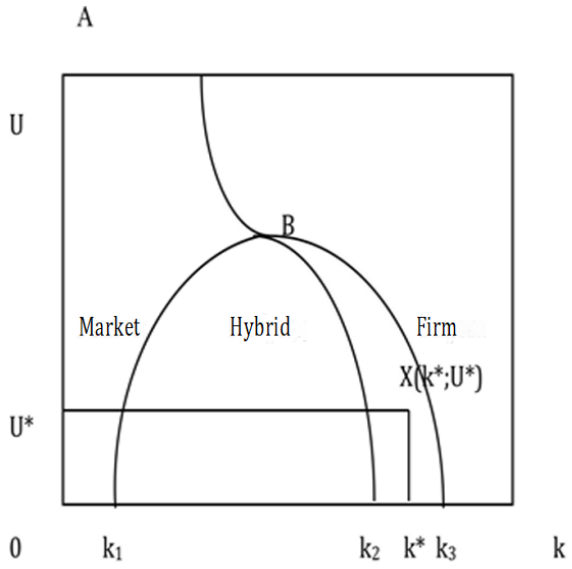

Fig. 2. The selection of governance structures on the degree of uncertainty and asset specificity

U is the uncertainty level, k is asset specificity; AB is the demarcation line between the market and the hierarchy under high uncertainty; k_1B is the demarcation line between the market and the hybrid under low uncertainty and low asset specificity; Bk_2 is the demarcation line between the hierarchy and the hybrid in the case of asymmetry in the design of the two types of institutional arrangements; Bk_3 is the demarcation line between the hierarchy and the hybrid in the case of symmetry in the design of the two types of institutional arrangements

That is why an increase in uncertainty and asset specificity translates into the forcing out of hybrid mechanisms and a wider application of the price and the hierarchy mechanisms. This is explained by that the transaction costs of renegotiation, which becomes more probable under high uncertainty, grow at the highest rate when hybrid forms are employed. In terms of the antitrust law, this would mean organising operations within one economic agent or one group of agents governed managed from a single control centre.

However, just as in the above example, it is important to consider what consequence the wrong choice of a mode of governance will entail, when the hierarchical principle of transaction organisation is rejected as inadmissible in favour of the hybrid mode of governance. The latter mechanism creates grounds for the enforcement of antitrust laws — in this case, it is possible to answer the questions about the price and the commodity that is the object of contractual relations.

3. The *frequency* of transactions in regard to the production, transfer, and processing of products with the same counterparty. This factor would not mean much on its own without the other two — asset specificity and uncertainty. Moreover, some studies show that the role of transaction frequency has not been sufficiently explicated [16]. Below, we will analyse transaction frequency in view of this consideration.

Frequency can refer to several aspects: (1) the frequency of interactions with a certain set of participants (up and down the production chain, not necessarily buyers and sellers); (2) long-term relations (all other things equal, the higher the frequency, the more long-term the relations). In particular, the latter aspect is crucial to complex, capital-intensive projects with a long payback period. In both cases, voluntary contractual relations between independent parties are complicated by an inability to foresee how specific assets will be used and the output will be distributed between the parties.

The higher the frequency of contractual relations with the same counterparty, the fewer incentives there are to use the market mode of governance and the fewer grounds there are to consider an asset as a commodity and the relevant relation as a commodity market.

In summing up the above overview of transaction cost economics, it is necessary to consider the following. *The very organisation of operations associated with high asset specificity, high uncertainty of the economic situation, and high frequency prevents from minimising transaction costs by using the price mechanism in whole or in part (by means of hybrid institutional arrangements). This is explained by excessive risks and resulting transaction costs that will be higher than those borne in the case of relations within a group of entities with a control centre (within one economic agent).*

Hierarchy as a mode of governance simplifies collective adaptation to changing conditions, since residuary rights — included in Honoré's eleven incidents of ownership [17] — are an important indication of to whom a certain resource or asset belongs [18]. This incident of ownership is invoked when incomplete contracts, part of which cannot be turned into complete ones even *ex-post* [19], *ex-ante* do not contain an answer to the question what actions the parties should take under limited time for adaptation to changing conditions (time specificity).

3. Gas pipelines: An analysis

Natural gas can be transported along pipelines using different modes of governance, including both general and dedicated ones.[2] The core of the first category is the price mechanism. However, the specifics of gas pipeline transportation make the use of this mechanism without alterations from the state a rare occasion, even if the pipeline was constructed to accommodate for multiple gas suppliers and consumers. This section considers two situations, one of which helps to introduce the historical context of the development of gas transportation and distribution system. The other situation describes emerging approaches to the selection of a mechanism for transaction management, where the pipeline is an extremely specific asset, which is used in transactions associated with high frequency and rather high uncertainty.

3.1. International practices of regulating access to the system of gas transportation and distribution: The economic impracticability of market transactions

In different countries, there are different conditions for the use of pipelines. In this short overview, we will show that the use of gas pipeline, based on the hybrid modes of governance, yields better results and has wider currency when the sections included in the pipeline systems are less specific. However, in the most developed systems that grant independent participants access to gas pipelines, namely, the US and the UK, the legislative systems allows for the impossibility to use market mechanisms in its pure form, which is reflected in complex regulatory requirements.

[2] A general mechanism suggests that, for any contracting party different to the owner, conditions for using an asset are universal. A case of a general mechanism is the use of terms and conditions stipulated within government regulation. A dedicated mechanism suggests that the conditions for the use of an asset are negotiated individually with each contracting party.

In the US, the complicated history of gas market regulation spans 80 years. In 1938, the Federal Power Commission (FPC) — later, the Federal Energy Regulatory Commission (FERC) — was given jurisdiction over interstate natural gas pipelines and wholesale sales so that pipeline owners did not abuse the market power. Against the background of the vertical integration of extraction and transportation companies or collusions between such companies, the abuse of power could manifest itself in setting inflated prices at the wellhead. From the mid-1950s, FPC was intervening in the organisation of related transactions and regulating wholesale gas prices. However, that initiative was not a success. Regulating prices for each deposit was too expensive and the prices were unprofitable for producers. As a result, the US was faced with a gas shortage. During the reforms of 1989—1993, wholesale price regulation was abolished [20]. At the same time, the regulation of gas pipeline services continued, although it was modified by Order No. 636.[3] The document compelled all the owners of interstate gas pipelines to restructure their operations through unbundling their non-regulated sales services from regulated transportation services. Thus, after November 1993, pipeline companies could only ship gas to end-users. All interstate pipelines are regulated by FERC.[4] FERC oversees the operations of gas transportation companies, in particular, it sets tariffs (if certain flexibility mechanisms are available, at the discretion of regulated entities) for the services provided, lays down access conditions and considers applications for the expansion of the existing capacities or the construction of new ones. Thus, even several decades after the launch of the reform aimed at unbundling gas transportation as a natural monopoly activity and production and sales as competitive activities, there is still a need for regulation to compensate for the faults of the market mechanism.

An interesting case is the Australian gas transportation system. There are significant differences between the market carriage system in Victoria and the contract carriage system in the other states. In the first case, pipeline owners grant the Australian Energy Market Operator access to the capacities. The Operator is responsible for transmission. Just as in the systems of regulated access to gas transmission capacities, a representative of the state is expected to ensure the absence of (or at least an effective limitation to) opportunism in contracts between market participants. In the second case, beyond the state of Victoria, gas suppliers conclude bilateral agreements with gas pipeline operators. Such agreements specify the maximum daily quantity of gas. The decision about introducing, or

[3] Order No. 636 — Restructuring of Pipeline Services http://www.ferc.gov/legal/maj-ord-reg/land-docs/restruct.asp, accessed 13.02.18.

[4] U.S. Energy Information Administration, http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/fullversion.pdf, accessed 13.02.18.

refraining from the regulation of a certain gas pipeline is made by the National Competition Council based on the assessment of the competition level. Within full regulation, both price and non-price conditions of pipeline access should be in line with the Access Arrangement Guideline. They require approval from the regulatory authority. Light regulation means that the operator can set tariffs independently, publishing them on its website. A gas pipeline can be recognised as uncovered if it has a limited market power [21]. For such gas pipelines, the access of a third party is coordinated within gas transportation agreements (GTAs). However, this is almost the only case when the terms and conditions of a contract covering the use of gas transportation capacities are not regulated by the state. Moreover, this happens against the background of specificity plummeting due to the opportunity to choose counterparties — both pipeline owners and consumers.

In the UK, gas industry operations were carried out within a single vertically integrated structure — British Gas — until the 1980s. The reform opened access to pipelines for third parties. British Gas was privatised, although vertical integration was left intact. However, the reform was not completed at the time. *De facto*, the access of outside companies to the pipeline network was not granted on acceptable conditions. The market of transportation services had not been functional until unbundling. Today, National Grid Gas is the owner and operator of the national transmission system (NTS). It supplies gas to distribution networks or directly to power stations and large business users.[5] The function of National Grid Gas is to maintain the supply/demand ratio through trade on the On-the-Day Commodity Market. The industry is regulated by the Office of Gas and Electricity Markets (OFGEM), the principal function of which is to support competition and regulate the operations of monopolies within these industries. In particular, since April 2013, the OFGEM has exercised the RIIO-T1 price control over National Grid Gas.[6] Alongside the national operator, which is responsible for transporting gas through major gas pipelines, there are independent companies in the gas carriage market that are engaged in distribution (GTC Pipelines, Independent pipelines, ES Pipelines, Energetics, Fulcrum Pipelines, Indigo Pipelines Limited[7]), whose rates are also regulated by the OFGEM.

The EU policy for gas transmission regulation has been developing over the past 25—30 years. Overall, it is based on the principles under-

[5] https://www.nationalgrid.com/uk/about-grid/our-role-industry/about-gas, accessed 13.02.18.

[6] https://www.ofgem.gov.uk/gas/transmission-networks/network-price-controls, accessed 13.02.18.

[7] For more detail on independent gas suppliers, see the website of the Association of Independent Gas Transporters at http://www.aigt.org.uk/companies.asp, accessed 13.02.18.

lying the US system, i. e. the unbundling of a regulated carriage industry so that gas transmission services should be present in the market under close control from a regulatory authority. In some countries, gas transmission systems are privately owned. The number of EU operators is rather considerable. In the EU gas industry, regulation applies to only transmission and distribution. Transmission companies must be certified in compliance with the unbundling requirements. Moreover, they also have to grant third parties non-discrimination access to their networks, based on a number of regulations (network codes) and according to the so-called Third Energy Package (in particular, EU Directive 2009/73/EC). Overall, access to gas transmission and distribution is regulated using standard access conditions and tariff rates, whereas access to gas pipeline beyond the national network is granted within negotiated third-party access agreements with possible exceptions to ensure continuous operations.

Thus, we can conclude that in international gas transmission practices, modes of governance reflect problems emerging in the conditions of long-term highly specific investment. In most countries, conditions of access to gas transmission systems are regulated. They are rarely established on a bilateral basis — when specificity is relatively low, i. e. the number of both suppliers and consumers is significant.

3.2. Selection of governance structures, subject to the requirements of the Third Energy Package. Russian gas transported via the Baltic

A vivid recent example of a transformation in the mechanisms for gas industry coordination was the gas industry liberalisation in Europe. The key regulations were the constituents of the so-called Third Energy Package adopted in 2009 — the Directive 2009/73/EC and Regulation EC No. 715/2009. However, the reform was launched as early as the 1990s, and was inspired by similar events in the US. These documents allow for alternative modes of governance in regard to the services of gas transportation between gas producers, on the one hand, and gas pipeline operators, on the other hand. The documents suggest three alternatives: ownership unbundling (OU), the status of an independent system operator (ISO), and that of an independent transmission operator (ITO) [22]. In the first case, two companies should have two different owners, which means virtual autonomy, whereas, in the second and third cases, transportation assets can remain in the ownership of gas companies. However, ISO suggests that capacities are managed by a special independent organisation and ITO and that they can remain under the management of a vertically integrated company provided its operational and

financial structures are separated and it keeps separate records of its revenue and expenditures. The latter two variants suggest strict control from the European Commission to ensure scrupulous and non-discrimination management of gas pipelines.

In terms of modes of governance, which were examined above in detail, it means that European legislators tried to replace the earlier hierarchical modes of governance between a gas company and a pipeline operator with the following options. The first one is a package of market mechanisms if part of the capacities is sold to independent participants at an auction, especially if a short-term contract is concluded. The second one includes bilateral mechanisms if long-term contracts are concluded with independent market participants based on auction results and similar process. The third variant is trilateral mechanisms if pipeline operators conclude contracts with pipeline owners under strict control form the European Commission within the ITO/ISO models.

One of the most serious problems associated with the use of new modes of governance relating to gas transportation is the conflict around the Nord Stream pipeline and its onshore extensions.

Nord Stream is an offshore pipeline that runs across the bottom of the Baltic Sea to connect Russia and Germany. It delivers 55 billion m^3 of gas per year and includes 2 lines, each with a capacity of 27.5 m^3. The pipeline is owned by a consortium of major stakeholders, including Gazprom (the controlling block of shares) and a number of European gas companies (Germany's Wintershall and E. ON, the Netherlands' Gasunie, and France's Engie). The pipeline's construction was a response to the following circumstances. Firstly, there was a need to create sufficient gas transmission infrastructure for North-western and Central Europe in view of a possible increase in demand for imports and of the depreciation of existing pipelines. Secondly, it was necessary to diversify the routes of gas supply from Russia in view of the existing risks in relations with transit states.

In recent years, the discussion has focused on the economic feasibility and, in a broader sense, the rationality of the decision made for the parties to a project and their states, as well as on the project's impact on the gas market. Lately, the discussion has been brought to the fore by the anticipated construction of a peer pipeline — Nord Stream 2, which will follow a similar route.

Most studies focusing on Nord Stream address a more complex object, namely the EU — Russia energy relations. The Nord Stream pipeline is usually considered as an element of a 'big game' of ensuring energy security of both parties against the background of high mutual dependence. A recent work [23] uses a game theory simulation to demonstrate that the Nord Stream pipeline is the most promising project

from the perspective of strategic investment. Moreover, it contributes to the negotiation power of German and Russia in Europe and reduces that of other participants. Other authors [24] have arrived at similar results using an analogous methodology. Although the above studies do not address the modes of governance relating to the Nord Stream pipeline, they attest to the high specificity of the project and related assets. The project is not only a means to transport gas in general but primarily a means to transport gas between the two specific parties to the transaction.

Other findings [25] demonstrate the asymmetry in the impact of the Nord Stream pipeline on transit risks faced by different EU member states, which once again prove the high specificity of the asset. However, the presence of a regulator, which has to aggregate the positions of different European shareholders, attaches a new aspect to the problem of selecting a mode of governance. Probably, the regulator, which intervenes in transaction management as a third party, is not interested in efficient transactions and it may even jeopardise them. However, in this work, we will not address this particular aspect. Therefore, we will assume that the regulator will not engage in opportunistic behaviour. Note that the latter term should not have a negative connotation. There are distinctly different approaches to energy security in Europe and, in particular, in the Baltic region (for more detail, see [26—29], thus, European regulators have to resort to, figuratively speaking, mixed strategies when designing energy security institutions and using enforcement tools.

Another area of research focuses on the legal regulation of the construction and operations of gas pipeline system with offshore sections, i. e. the rights of the third parties to intervene in governance from a legal perspective. In particular, Langlet and Talus [30; 31] emphasise that, in the current international institutional environment, coastal states and the EU as a whole have very limited rights in regard to the Nord Stream pipeline. These rights relate to restrictions on pipeline construction but not on gas carriage transactions. This means that the project participants have to face a diverse institutional environment and, therefore, with non-harmonised limitations on selecting modes of governance along the onshore and offshore sections of the same gas transportation system.

Research literature rarely offers an immediate analysis of modes of governance relating to gas transportation along the Nord Stream pipeline and its extensions, from the perspective of the transaction cost economics. Nevertheless, some experts are exploring the issue. In particular, it has been stressed [32] that the Russian supplier's interest in offshore gas transportation may be explained by the possible project participants from the Baltics rejecting the idea of hierarchical relations. If they were ready for this format, the pipeline would run across their territories. This is very much in line with our position on the priority of the hierarchical mecha-

nisms for managing transaction relating to gas transportation services within the project in question. However, another work [32] uses a different hierarchy concept borrowed from the international relations theory.

In 2011, when gas was pumped into the first line of the Nord Stream, Gazprom was faced with the problem of implementing a necessary mechanism for transaction management. We will dwell on it at some length. The company had to manage the onshore extension — two lines running from the German city of Greifswald — OPAL and NEL. The two pipelines were operated by the companies OPAL Gastransport and NEL Gastransport. Gazprom had control over both operators and over the gas pumped through the Nord Stream.

The level of specificity is very high for OPAL, NEL, and the Nord Stream. The services of the OPAL and NEL have value only if gas supply from the Nord Stream is secured. At the same time, the services of the Nord Stream have value only if there is an opportunity to pump gas into OPAL and NEL. The high level of transaction frequency is undoubted. Gas supply must be uninterrupted and in line with the consumption rate to ensure heat and electricity generation. In this case, uncertainty is accounted for by the number of necessary transport services, which is affected by competition, transit problems on other routes, and — most importantly — the level of economic activity, energy regulations, and weather conditions. The latter three parameters influence gas demand, which is highly volatile (figure 3).

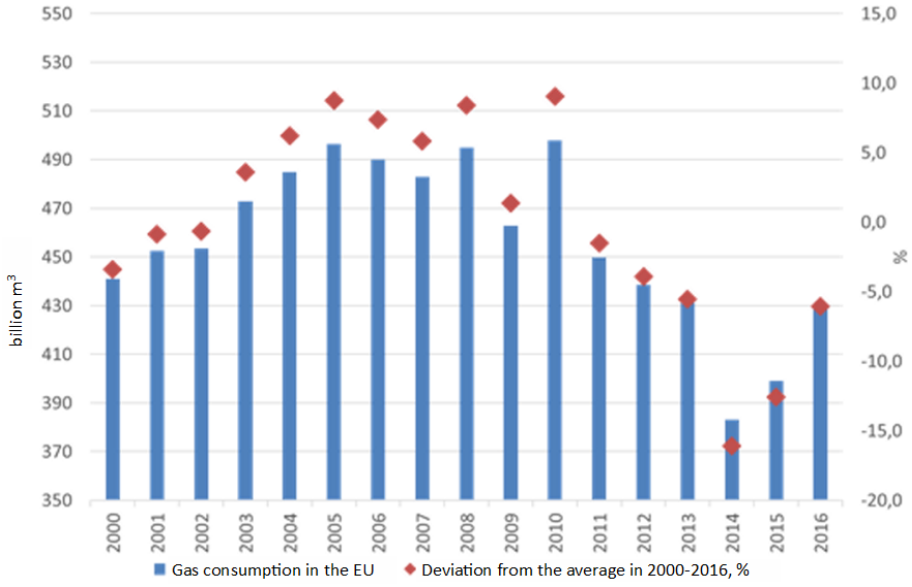

Fig. 3. Gas consumption and deviation from the average in 2000—2016
Source: British Petroleum Statistical Review of World Energy 2017

In view of these transaction attributes, the best possible mode of governance is hierarchy. However, it does not meet the requirements of the Third Energy Package. The Gazprom Group submitted applications for excluding the operators OPAL and NEL from the EC's standard gas regulation. There was such an opportunity for new pipelines. The NEL application was rejected straight away. Gazprom had to adopt the ITO model, thus abandoning the hierarchy mechanism. In this case, the company's transaction costs are difficult to observe, whereas OPAL was affected by the problems of the new European regulation in a more evident manner.

As to OPAL, the European Commission made an exemption decision and the hierarchy mechanism was preserved within the Gazprom Group — albeit for limited gas volumes. This was achieved by introducing a limit to the volume of gas that Gazprom could ship to OPAL's exit point at Brandov at the German-Czech border. The company was not allowed to utilise more than 50 % of OPAL's capacity. The rest of the capacity could not be used to transport Gazprom's gas but it could be transferred to other gas companies. However, due to some technical issues, only Gazprom could ship gas to OPAL. Therefore, the EC's decision created a situation when OPAL had to work at only half the capacity over several years. This translated into a lower gas supply and rising gas prices in the Czech Republic. The outcome was opposite to what was intended. Gazprom tried to sell part of the gas to other gas companies at the OPAL entry point. However, the demand was minimal [33].

At the end of 2016, the European Commission permitted OPAL Gastransport to sell the available capacity through an auction platform and Gazprom to buy it. As a result, OPAL approached full capacity.[8] Thus, quasi-market mechanisms were introduced anyway. Today, part of the capacity is distributed according to the regulator's rules using the auction procedure. However, in recent years, costs were incurred by both producers and consumers, whereas positive effects of the previous policies remain unclear. If there is one producer and one consumer, which are affiliated, even a strict control over their relations or the prices they set for each other regulates neither what parties can take part in a transaction, not their incentives, nor their limitations, nor shipment volumes.

At the same time, the use of the price mechanism, which determines the transaction attributes, requires an acknowledgement of the presence of a commodity market. In particular, this is necessary for utilising antitrust policy tools to prevent the abuse of a dominant positions or anticompetitive agreements.

In the above example, hybrid forms and hierarchies prevail as two classes of dedicated institutional arrangements ensuring uninterrupted

[8] This decision did not come into effect immediately, since it had been contested within European procedures.

and constantly renewed transactions. The hybrid mechanism for transaction management suggests that the parties conclude a long-term contract covering comprehensive services. The hierarchy mechanism suggests utilising a pipeline built at the expense of a company in the framework of the same company. In the first case, all other things equal, there are grounds to speak of elements of the price mechanism and the presence of a commodity market, unbundled in accordance with the antitrust regulation. In the second case, there are no such grounds.

Accordingly, for performing the same operations (for instance, gas carriage), which presuppose the use of the price mechanism translates into the emergence of a commodity market, not by default but only if a number of conditions are met. If the conditions, which are examined above, are not met, investors choose alternative mechanisms to manage transactions. The availability of such a choice — and the protection of the right to make it — constitutes a fundamental principle of entrepreneurship. Entrepreneurship, in its turn, ensures the stability of the mechanisms for economic development and public welfare growth.

Conclusions

Economic models that provide a rationale for interventions from antitrust authorities often take the existence of a market of a relevant commodity or service as its basic premise. However, this trivial premise is not always met, since the specifics of transactions can translate into the emergence of a different coordination mechanism within an industry, probably, not even an industry but a separate product or geographical segment.

Using a trilateral or bilateral mode of governance in the case of a naural or bilateral monopoly leaves room for the operations of an antitrust authority, which nevertheless might be forced to revise its approaches to regulation.

The intervention of an antitrust authority into the hierarchy mechanism for transaction management, i. e. the operations of a vertically integrated company, can be justified only if there are sufficient grounds to restructure the company, with public welfare in mind.

At the same time, as the case analyses examined show, disputes about attempts to construct an artificial market mechanism can lead to a suboptimal result, if they ignore the attributes of relevant transactions, primarily, their asset specificity.

References

1. Williamson, O. 1996, *The Mechanisms of Governance*, N. Y., Oxford.

2. Russian Electricity Industry, 2018, *NP "Market Council",* available at: https://www.np-sr.ru/ru/market/cominfo/rus/index.htm (accessed 12.01.2018) (in Russ.).

3. Williamson, O. 1986, *The Economic Institutions of Capitalism*, N. Y., L.

4. FAS Russia. Analysis of transportation services for petroleum products, 2016, October 28, available at: http://fas.gov.ru/documents/562062 (accessed 20.10.2017) (in Russ.).

5. Shastitko, A. E., Pavlova N. S. 2017, Antitrust in a bilateral monopoly, *Voprosy ekonomiki* [Issues of economics], no. 8, p. 75—91 (in Russ.).

6. Shastitko, A. E. 2011, Errors of the I and II kind in economic exchanges with participation of the third party-guarantor, *Zhurnal novoi ekonomicheskoi assotsiatsii* [Journal of the New Economic Association], no. 2, p. 125—148 (in Russ.).

7. Shastitko, A. E. 2013, *Ekonomicheskie effekty oshibok v pravoprimenenii i pravoustanovlenii* [Economic effects of errors in law enforcement and law enforcement], Moscow (in Russ.).

8. Kryuchkova, P. V., Avdasheva, S. B. 2012, State and private enforcement of legislation at the risk of mistakes of the first kind: a choice for Russia, *Zhurnal novoi ekonomicheskoi assotsiatsii* [Journal of the New Economic Association], no. 3 (15), p. 114—140 (in Russ.).

9. Avdasheva, S. B., Kryuchkova, P. V. 2015, The 'reactive' model of antitrust enforcement: When private interests dictate enforcement actions — The Russian case, *International Review of Law and Economics*, Vol. 43, p. 200—208.

10. Katsoulacos, Y., Avdasheva, S. B., Golovanova, S. 2016, Legal standards and the role of economics in Competition Law enforcement, *European Competition Journal*, Vol. 12, no. 2—3, p. 277—297.

11. Tutov, L. A., Shastitko, A. E. 2017, The experience of the objective identification of a new institutional economic theory, *Voprosy filosofii*, no. 6, p. 63—73 (in Russ.).

12. Yvrande-Billon, A., Saussier, S. 2005, Does Organization Choice Matter? Assessing the Importance of Governance Through Performance Comparisons, *New Ideas in Contracting and Organizational Economics Research*, N. Y., p. 71—87.

13. Shastitko, A. E. 2016, On the methodology of institutional research (on the occasion of the 80th anniversary of Ronald Coase's paper "Nature of the Firm"), *Voprosy ekonomiki* [Issues of economics], no. 8, p. 96—116 (in Russ.).

14. Shastitko, A. E., Menard, C. 2017, Discrete institutional alternatives: Theoretical and policy issues (Celebrating the 80th anniversary of Ronald Coase's "Nature of the Firm"), *Russian Journal of Economics*, Vol. 3, no. 2, p. 200—220.

15. Menard, C. 2004, The Economics of Hybrid Organizations, *Journal of Institutional and Theoretical Economics*, Vol. 160, p. 1—32.

16. Menard, C. 2008, A new institutional approach to organization. In: Menard, C., Shirley, M. (eds.) *The handbook of new institutional economics*, Berlin, Dordrecht, N. Y., p. 281—318.

17. Honore, A. M. 1961, Ownership. In: Guest, A. G. *Oxford Essays in Jurisprudence*, Oxford.

18. Hart, O. 2001, Financial Contracting, *Journal of Economic Literature*, Vol. XXIX, p. 1079—1100.

19. Schwartz, A. 1992, Legal Contracts and Incomplete Contracts. In: Werin, L., Wijkander, H. (eds.) *Contract Economics*, Blackwell, p. 76—108.

20. Abbott, M. 2016, *The Economics of the Gas Supply Industry*, Routledge.

21. AER (Australian Energy Regulator). Our role in networks, 2018, available at: https://www.aer.gov.au/networks-pipelines/our-role-in-networks (accessed 15.02.2018).

22. Yafimava, K. 2013, The EU Third Package for Gas and the Gas Target Model: major contentious issues inside and outside the EU, *OIES,* Paper NG-75, April 2013.

23. Hubert, F., Cobanli, O. 2016, Pipeline Power: A Case Study of Strategic Network Investments, *Review of Network Economics*, Vol. 14, no. 2, p. 75—110.

24. Nagayama, D., Horita, M. 2014, A network game analysis of strategic interactions in the international trade of Russian natural gas through Ukraine and Belarus, *Energy Economics*, no. 43, p. 89—101.

25. Le Coq, C., Paltseva, E. 2012, Assessing gas transit risks: Russia vs. the EU // *Energy policy*, no. 42, p. 642—650.

26. Bozhilova, D., Hashimoto, T. 2010, EU — Russia energy negotiations: a choice between rational self-interest and collective action, *European Security*, Vol. 19, no. 4, p. 627—642.

27. Stefanova, B. M. 2012, European strategies for energy security in the natural gas market, *Journal of Strategic Security*, Vol. 5, no. 3, p. 51—67.

28. Zverev, Yu. M. 2010, Competition and cooperation problems in the energy sector of the Baltic region, *Balt. Reg.,* no. 1, p. 31—40. doi: 10.5922/2079-8555-2010-1-5.

29. Salikov A. N., Tarasov I. N., Urazbaev E. E. 2016, The Baltic policy of Germany and current international relations, *Balt. Reg.,* Vol. 8, no. 1, p. 60—66. doi: 10.5922/2079-8555-2016-1-5.

30. Langlet, D. 2014, Transboundary transit pipelines: reflections on the balancing of rights and interests in light of the Nord Stream project, *International & Comparative Law Quarterly*, Vol. 63, no. 4, p. 977—995.

31. Talus, K. 2017, Application of EU energy and certain national laws of Baltic sea countries to the Nord Stream 2 pipeline project, *The Journal of World Energy Law & Business*, Vol. 10, no. 1, p. 30—42.

32. Crandall, M. 2014, Russian Energy Transit Policy in the Baltic Sea Region, *Debatte: Journal of Contemporary Central and Eastern Europe*, Vol. 22, no. 2, p. 143—159.

33. Yafimava, K. 2017, The OPAL Exemption Decision: past, present, and future, *OIES,* Paper NG-117, January 2017.

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